

DECISION RECORD

DOI-BLM-NM-P010-2015-0048 EA

Proposed Decision: It is my decision to implement the BLM-Preferred Alternative as described in DOI-BLM-NM-P010-2015-0048-EA and to issue a permit and a lease for the allotments analyzed in this document. The mitigation measures identified in the environmental assessment (EA) have been formulated into terms and conditions that will be attached to the grazing permit or lease. This decision incorporates, by reference, those conditions identified in the attached Environmental Assessment. A summary table follows:

Allot #	Allot Name	Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
64060	Hondo Canyon	33623	27124	53	1587	Cattle	10094
64060	Hondo Canyon			53	5	Sheep	6
64060	Hondo Canyon			53	5	Goats	6
64060	Hondo Canyon			53	1	Horse	6
Totals		33623	27124	53	1590		10112

Allot #	Allot Name	Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
64560	Hondo Canyon West	4721	17965	100	112	Cattle	1344
64560	Hondo Canyon West			100	5	Sheep	12
64560	Hondo Canyon West			100	5	Goats	12
64060	Hondo Canyon West			100	1	Horse	12
Totals		4721	17965	100	115		1380

Rationale: Based on the rangeland health assessments (RHAs) and previous monitoring, resource conditions on this allotment are sufficient and sustainable to support the level of use outlined in the term grazing permit.

The Proposed Action will be in compliance with the 1997 Roswell Resource Management Plan and Record of Decision, the 2008 Special Status Species Resource Management Plan Amendment (2008 RMPA), and the 2001 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management.

If you wish to protest this proposed decision in accordance with 43 CFR 4160.2, you are allowed 15 days to do so in person or in writing to the authorized officer, after the receipt of this decision. Please be specific in your points of protest.

The protest shall be filed with the Field Manager, Bureau of Land Management, 2909 West 2nd, Roswell, NM 88201. This protest should specify, clearly and concisely, why you think the proposed action is in error.

In the absence of a protest within the time allowed, the above decision shall constitute my final decision. Should this notice become the final decision, you are allowed an additional 30 days within which to file an appeal for the purpose of a hearing before the Interior Board of Land Appeals, and to petition for stay of the decision pending final determination on the appeal (43 CFR 4.21 and 4.410). If a petition for stay is not requested and granted, the decision will be put into effect following the 30-day appeal period. The appeal and petition for stay should be filed with the Field Manager at the above address. The appeal should specify, clearly and concisely, why you think the decision is in error. The petition for stay should specify how you will be harmed if the stay is not granted.

/s/ Kyle S. Arnold
Kyle Arnold
Assistant Field Manager, Resources

05/28/2015 .
Date

FINDING OF NO SIGNIFICANT IMPACT:

I have determined that the BLM Preferred Alternative (Alternative A), as described in the Environmental Assessment (EA) will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an environmental impact statement is not required. The NEPA handbook (p. 83) indicates that the FINDING OF NO SIGNIFICANT IMPACT (FONSI) must succinctly state the reasons for deciding that the action will have no significant environmental effects. It also recommends that the FONSI address the relevant context and intensity factors.

In making this determination, I considered the following factors:

1. The activities described in the BLM Proposed Alternative (Alternative A) do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). The EA includes a description of the expected environmental consequences of issuing a term grazing permit on Allotment 64060 and a term grazing lease on Allotment 64560.
2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)).
3. The proposed activities would not significantly affect any unique characteristics (40 CFR 1508.27(b)(3)) of the geographic area such as prime and unique farmlands, caves, wild and scenic rivers, designated wilderness areas or wilderness study areas.
4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)).
5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)).
6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)).
7. The effects of issuing a term permit or term lease would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). The EA discloses that there are no other connected or cumulative actions that would cause significant cumulative impacts.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). Cultural resource surveys in the allotments have been generally limited to inspections ahead of livestock or recreational related activities, such as water well locations, fences and pipelines. Many areas of the allotments have been generally inventoried for cultural resources. The existing cultural data for the allotments and adjacent areas seems to be a good example of what can be reasonably expected to occur in the remainder of the allotments. No site-specific situations are known to exist where current grazing practices conflict with cultural resource preservation and management. Some mitigation is included in the proposed action to protect cultural resources from grazing practices, such as: "In the event that grazing practices are determined to have an adverse effect on cultural resources within the allotment, the BLM, in consultation with the permittee, will take action(s) to mitigate or otherwise negate the effects. This may include but is not limited to installing physical barriers to protect the affected cultural resources, relocating the livestock grazing practice(s) that is (are) causing the adverse effect(s), or any other treatment as appropriate. Page 25-27 of the EA describe the affected environment and impacts of the proposed action and alternatives on cultural resources.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). Within the allotments there are no known populations of threatened and endangered species, or designated critical habitat within the allotment.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Page 10 of the EA describes the conformance with land use plans and relationships to statutes, regulations, or other plans.

APPROVED:

/s/ Kyle S. Arnold
Kyle S. Arnold
Assistant Field Manager, Resources

05/28/2015
Date

United States Department of the Interior Bureau of Land Management

Environmental Assessment DOI-BLM-NM-P010-2015-048-EA

Issuance of Term Grazing Permit/Lease on Hondo Canyon, Allotment Number 64060 & Hondo Canyon West Allotment Number 64560

U.S. Department of the Interior
Bureau of Land Management
Pecos District
Roswell Field Office
2909 West Second Street
Roswell, NM 88201-2019
Phone: (575) 627-0272
FAX: (575) 627-0276

Confidentiality Policy

Any comments, including names and street addresses of respondents, you submit may be made available for public review. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

BLM

Roswell Field Office



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1.0 Purpose and Need for Action

1.1 Introduction

This environmental assessment is limited to the effects of issuing a new grazing permit on allotment 64060 Hondo Canyon and a grazing lease on allotment 64560 Hondo Canyon West. Over time, the need could arise for subsequent management activities which relate to grazing authorization. These activities could include vegetation treatments (e.g., prescribed fires, herbicide projects), range improvement projects (e.g., fences, water developments), and others. Future rangeland management actions related to livestock grazing would be addressed in project-specific NEPA documents as they are proposed.

Though this environmental assessment specifically addresses the impacts of issuing grazing permit/lease on the allotment, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve those other goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit or lease as terms and condition.

➤ General Setting

The public land within the Hondo Canyon and Hondo Canyon West Allotments is located in the 13060008 – Rio Hondo Watershed in Lincoln and Chaves County. The allotments are about 30 miles west of Roswell, New Mexico. See Location Map.

The climate is semi-arid with normal annual temperatures ranging from 20⁰F to 95⁰F, extremes of 29 below zero to 103 degrees are also possible. Average annual precipitation is approximately 13-16 inches in the form of rainfall and snow.

Allotment 64060 is located in Lincoln and Chaves County, about twelve miles west of Roswell, New Mexico. The allotment is made up of twenty pastures, and three traps of various sizes. The allotment is watered by fifteen base water wells, 6 additional supplemental water wells, a water pipeline system, several dirt tanks, irrigation canals and the Rio Hondo. The allotment consists of 33,623 acres of public land, approximately 20,804 acres of private land and 6,320 acres of state leased lands. The allotment surrounds but does not include a tract of 2,229 acres of privately held irrigated fields.

Allotment 64060 (Hondo Canyon) lies inside the Roswell Grazing District Boundary, established subsequent to the Taylor Grazing Act (TGA), and it is administered under Section 3 of the TGA. The permitted use on a Section 3 permit is established by the amount of forage produced on the public land and all other controlled land, such as private, leased and state grazing leased land. The public animal units are then derived for the amount of forage from the public lands in relationship to all forage produced. During the late 1930's and 40's BLM and the allottee at that time agreed to the number of stock the ranch could run. Since then, BLM Roswell has been very involved in vegetation monitoring and range evaluations. Using these data, adjustments to stocking rates and total numbers have been made on allotments throughout the resource area. BLM has established the number of stock allowed on the entire ranch,

inclusive of all land status, excluding only lands that are not controlled by the allottee (not owned or leased).

Allotment 64560 (Hondo Canyon West) is located outside of the Roswell Grazing District Boundary. It is administered under Section 15 of the TGA. Permitted use on scattered tracts is determined by the amount of forage produced on the public lands alone and the number of stock on the entire ranch is not controlled by BLM. Due to the amount of public land (4,721 acres) in relation to the amount of private land on this allotment, the BLM does not control the number of stock on this allotment.

Allotment 64560 is located in Lincoln County, on the west side of allotment 64060. This allotment consists of 4,721 acres of public land and 17,965 acres of private land. The allotment is split into ten pastures and two traps. Seven wells exist within the allotment. The Rio Hondo bisects the ranch, but no public land borders the river.

The area of Allotment 64060 and 64560 consists of rolling grass covered hills, with a mixed desert shrub aspect. Elevations range from about 5,100 feet along western edge of allotment 64560 to 3,925 feet along the eastern boundary of allotment 64060. Grass species make up a predominant portion of the production in the existing plant community, although the percentages of grasses, forbs and shrubs actually found at a particular location will vary with recent weather factors and past resources uses. The average recorded precipitation is 12.58 inches (recorded in Roswell, NM.). Most of the annual precipitation falls during high intensity-short duration thunderstorms occurring from May to October.

Preparing Office:

Pecos District, Roswell Field Office
2909 W. Second Street
Roswell, NM 88201

1.2 Purpose and Need for Action

The purpose of issuing a new grazing permit and lease would be to authorize livestock grazing on public range on Allotments #64060 Hondo Canyon and 64560 Hondo Canyon West. When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) must conduct a site-specific NEPA analysis before issuing a permit/lease to authorize livestock grazing. This environmental assessment fulfills the NEPA requirement by providing the necessary site-specific analysis of the effects of issuing a new grazing permit/lease on each allotment. The permit/lease would be needed to specify the types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3-1, 4130.3-2, and 4180.1.

1.3 Decision to be Made

The Decisions to be made upon the completion of this Environmental Assessment are: to issue a Grazing permit and a Grazing lease which will authorize grazing on Allotment 64060 Hondo Canyon and Allotment 64560 Hondo Canyon West; to authorize the level of grazing on these allotments and to authorize the classes of livestock grazing on the allotments.

1.4 Conformance with Applicable Land Use Plan(s)

The proposed action conforms to the 1997 Roswell Approved Resource Management Plan (RMP) and Record of Decision, and the 2000 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management and Record of Decision as required by 43 CFR 1610.5-3.

1.5 Relationship to Statutes, Regulations or Other Plans

The proposal to issue the livestock grazing permit and lease on these allotments is in conformance with the 1994 Environmental Impact Statement for Rangeland Reform; the Federal Land Policy and Management Act of 1976 (FLPMA)(43 U.S.C. 1700 et seq.); the Taylor Grazing Act of 1934 (TGA)(43 U.S.C. 315 et seq.); the Public Rangelands Act of 1978 (PRIA)(43 U.S.C. 1901 et seq.); and the Federal Cave Resources Protection Act of 1988.

1.6 Scoping, Public Involvement, and Issues

The applicant has been the authorized operator on these allotments for many years. The current permit and lease are getting ready to expire, so the operator has made application to renew the permit and the lease. The Roswell Field Office Specialists have reviewed the request and determined that the action should be considered.

2.0 Proposed Action and Alternative(s)

The BLM is proposing to issue a grazing permit and lease on the allotments. Allotment 64060 is managed under Section 3 of the Taylor Grazing Act, while allotment 64560 is managed under Section 15 of the Taylor Grazing Act. Long term authorizations under Section 3 are defined as permits while under Section 15 the long term authorization is defined as a lease.

The classes of livestock proposed on both allotments includes cattle, sheep, goats and horses. The period of use would be from March 1 to last day of February of each year.

If the proposed action is selected the Decision will be implemented to offer a new term grazing permit and a long term grazing lease on the allotments at the end of the Protest & Appeal Period.

Under this Proposed Action, BLM is not proposing to change the existing level of grazing nor the classes of livestock to be authorized on the permit or lease. For future reference in this document, the Proposed Action may be referred to as the “No Action Alternative” or “Alternative A.”

Allot #	Allot Name	Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
64060	Hondo Canyon	33623	27124	53	1587	Cattle	10094
64060	Hondo Canyon			53	5	Sheep	6
64060	Hondo Canyon			53	5	Goats	6
64060	Hondo Canyon			53	1	Horse	6
Totals		33623	27124	53	1590		10112

Allot #	Allot Name	Acres of Public Land	Acres of Private & State Land	% Public Land	Animal Units Authorized	Class of Livestock	Animal Unit Months
64560	Hondo Canyon West	4721	17965	100	112	Cattle	1344
64560	Hondo Canyon West			100	5	Sheep	12
64560	Hondo Canyon			100	5	Goats	12

	West						
64060	Hondo Canyon West			100	1	Horse	12
Totals		4721	17965	100	115		1380

See Attached Maps.

2.1 Alternatives Considered but Not Analyzed in Detail

Grazing with reduced numbers – BLM considered authorizing grazing with reduced numbers on this allotment. Grazing with reduced numbers would produce impacts similar to the proposed action. Additionally, this allotment met the Standard for Public Land Health and monitoring studies do not indicate changes are necessary. Therefore, BLM will not analyze this alternative.

2.2 No Grazing Alternative

Under this alternative a new grazing permit or lease would not be issued for these allotments. No grazing would be authorized on federal land on these allotments under this alternative. Under this alternative and based on the land status pattern within the allotments, an extensive amount of new fencing would be required to exclude grazing on the public land

3.0 Affected Environment, Environmental Consequences, and Cumulative Impacts

During the analysis process, the interdisciplinary team considered several resources and supplemental authorities. The interdisciplinary team determined that the resources discussed below would be affected by the proposed action.

The following resources or values are not present or would not be affected by the authorization of livestock grazing on this allotment: Cultural Resources, Native American Religious Concerns, Areas of Critical Environmental Concerns, Threatened and Endangered Species, Special Status Species, Visual Resources, Prime or Unique Farmland, Solid Mineral Resources, Fluid Mineral Resources, Public Health and Safety, Minority/Low Income Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness.

3.1 Soil / Water / Air

➤ Climate

Affected Environment

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. GHG's and the potential effects of GHG emissions on climate are not regulated by the EPA, however climate has the potential to influence renewable and non-renewable resource management.

Greenhouse gases, including carbon dioxide (CO₂) and methane (CH₄), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA's Inventory of US Greenhouse Gas Emissions and Sinks found that in 2006, total US GHG emissions were over 6 billion metric tons and that total US GHG emissions have increased by 14.1% from 1990 to 2006. The report also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation.

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHG's result in behavioral and industrial adaptations.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on

tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed permit/lease and subsequent actions.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global averages by nearly 50% since the 1970's (Enquist and Gori). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state.

Impacts from the No Action (Proposed Action) Alternative

Direct and Indirect Impacts

Climate change analyses are comprised of several factors, including greenhouse gases (GHGs), land use management practices, the albino effect, etc. The tools necessary to quantify climatic impacts from the Proposed Action are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that may contribute to climate change. Qualitative and/or quantitative evaluation of potential contributing factors within the planning area is included where appropriate and practicable.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There will be no direct or indirect impacts to climate if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on climate resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on climate resources would be eliminated, but others would occur. Grazing would no longer be available

as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meet the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Soils

Affected Environment

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Chaves County. Complete soil information is available in the Soil Survey of Chaves County, New Mexico, Northern Part (USDA Soil Conservation Service 1980) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Kimbrough, dry-Ector association, 0 to 15 percent slopes (KEC) Permeability of the Kimbrough soil is moderate. Runoff is rapid and the hazard of water erosion is high. The hazard of soil blowing is moderate. Permeability of the Ector soil is moderate. Runoff is rapid and the hazard of water erosion is high. The hazard of soil blowing is slight.

Reakor silt loam, 1 to 3 percent slopes (ReB) Permeability of the Reakor soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Upton gravelly loam, 0 to 5 percent slopes (UaB) Permeability of the Upton soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate.

Upton-Ector, dry association, moderately rolling, 0 to 15 percent slopes (UEC) Permeability of the Upton soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. Permeability of the Ector soil is moderate. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is slight.

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Chaves County. Complete soil information is available in the Soil Survey of Chaves County, New Mexico, Southern Part (USDA Soil Conservation Service 1980) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Ector-Rock outcrop complex, 0 to 9 percent slopes (EcC) Runoff is rapid and the medium of water erosion is moderate and soil blowing is slight. Rock outcrop is rapid.

Ector-Rock outcrop complex, 9 to 30 percent slopes (EcD) Runoff is rapid and the hazard of water erosion is moderate and soil blowing is slight.

Lozier-Tencee complex, 1 to 9 percent slopes (Lt) For the Lozier and Tencee soil, runoff is medium and the hazard of water erosion is slight or moderate, and the hazard of soil blowing is slight.

Pecos silty clay loam, nonsaline, 0 to 3 percent slopes, (PGB) Runoff is medium or slow. The hazard of water erosion is moderate, and the hazard of soil blowing is slight. Gullies are few.

Pecos-Dev association, 0 to 5 percent slopes (PH) Runoff is medium or slow and the hazard of water erosion is moderate and soil blowing is slight.

Reakor-Pecos association, 0 to 3 percent slopes (RH) Runoff is medium or slow and the hazard of water erosion is moderate and soil blowing is slight.

Tencee cobbly loam, 5 to 30 percent slopes (TfD) Runoff is medium. The hazard of water erosion is moderate and the hazard of soil blowing is slight.

Tencee Upland Complex, 0 to 9 percent slopes (Tg) Runoff of the unit soil is medium and the hazard of water erosion is moderate and the hazard of soil blowing is slight.

The Soil Conservation Service, now the Natural Resource Conservation Service (NRCS), has surveyed the soils in Lincoln County. Complete soil information is available in the Soil Survey of Lincoln County, New Mexico, (USDA Soil Conservation Service 1983) and online at <http://websoilsurvey.nrcs.usda.gov/app/>. The soil map units represented in the project area are:

Darvey Asparas association, gently sloping, 0 to 5 percent slopes (8) Permeability of the Darvey soil is moderate. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high. Permeability of the Asparas soil is moderately slow. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is high.

Deama-Rock outcrop association, very steep 15 to 50 percent slopes (14) Permeability is moderate. Runoff is rapid and the hazard of water erosion is high. The hazard of soil blowing is slight.

Ector-Kimbrough association, gently sloping (16) Permeability of the Ector soil is moderate. Runoff is rapid, and the hazard of water erosion is high and the hazard of soil blowing is slight. Permeability of the Kimbrough soil is moderate. Runoff is rapid, and the hazard of water erosion is high and the hazard of soil blowing is moderate.

Ector-Rock outcrop association, moderately sloping (17) Permeability of the Ector soil is moderate. Runoff is rapid and the hazard of water erosion is high and the hazard of soil blowing is slight.

Ector-Rock outcrop association, moderately steep (18) Permeability of the Ector soil is moderate. Runoff is rapid, and the hazard of water erosion is high and the hazard of soil blowing is slight.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Under the No Action alternative (Alternative A, the Proposed Alternative) livestock would remove some of the cover of standing vegetation and litter, and compact the soil by trampling. If livestock management were inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The greatest impacts of removing vegetation and trampling would be expected in areas of concentrated livestock use, such as trails, waters, feeders, and shade.

Under Alternative A, rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion. Low/moderate forage quality plants provide protection to the soils resource. Cumulative long term monitoring data reflect the soils are being adequately protected.

Impacts from the No Grazing Action

Direct and Indirect Impacts

The soil will not be subjected to compaction, shipping or standing vegetation reduction that is associated with livestock grazing. The stability and development of the soil would be about the same as with grazing. Soil compaction would be reduced on the allotments around drinking troughs and along trails. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

The ecological site guides (www.nm.nrcs.usda.gov) describes some of the potential adverse impacts that could occur. If the present communities are maintained, no adverse affects are likely to occur however, if the communities degrade over time, an increase in bare ground and subsequent increase in soil erosion may occur.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on soil resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated to soil resources, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Cumulative long term monitoring data reflect the soils are being adequately protected.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

➤ Air Quality

Affected Environment

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility.

The allotments are in an area that is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment. Air quality in the area is generally good and is not located in any of the areas designated by the Environmental Protection Agency as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

Air quality in the region is generally good, with winds averaging 10-16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

Impacts from the No Action (Proposed)Alternative

Direct and Indirect Impacts

Air quality would temporary be directly impacted with pollution from enteric fermentation (ruminant livestock), chemical odors, and dust. Dust levels resulting from allotment

management activities would be slightly higher under the Proposed Action than No-Grazing Alternative. The cumulative impact on air quality from the allotment would be negligible compared to all pollution sources in the region.

The federal Clean Air Act requires that air pollutant emissions be controlled from all significant sources in areas that do not meet the national ambient Air quality standards. The New Mexico Air Quality Bureau (NMAQB) is responsible for enforcing the state and national ambient air quality standards in New Mexico. Any emission source must comply with the NMAQB regulations. At the present time, the counties that lie within the jurisdictional boundaries of the Roswell Field Office are classified as in attainment of all state and national ambient air quality standards as defined in the Clean Air Act of 1972, as amended (USDI, BLM 2003b).

The Environmental Protection Agency (EPA), on October 17, 2006, issued a final ruling on the lowering of the National Ambient Air Quality Standard (NAAQS) for particulate matter ranging from 2.5 micron or smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM_{2.5}, was lowered to 35 ug/m³ from the previous standard of 65 ug/m³. This revised PM_{2.5} daily NAAQS was promulgated to better protect the public from short-term particle exposure. The significant threshold of 35 ug/m³ daily PM_{2.5} NAAQS is not expected to be exceeded under the proposed action.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There would be no change to the air quality with the no grazing alternative.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on air resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on air resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Watershed Hydrology

Affected Environment

The watershed and hydrology in the area is affected by land and water use practices. The degree to which hydrologic processes are affected by land and water use depends on the location, extent, timing and the type of activity. Factors that currently cause short-lived alterations to the hydrologic regime in the area include livestock grazing management, recreational use activities, groundwater pumping and also oil and gas developments such as well pads, permanent roads, temporary roads, pipelines, and powerlines.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Livestock grazing will not have a significant influence on water quality. The State of New Mexico conducts water-quality assessments to ensure streams segments' designated uses are supported. The uses on Segments 2206 and 2208 are fully supported; indicating water quality is not significantly affected by livestock grazing on the allotment. The ground water is not affected by livestock grazing.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the No-Grazing Alternative, any adverse impact from livestock grazing management and range improvement projects would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative Impacts of All Alternatives

The incremental impact of issuing a grazing permit on watershed hydrology resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on watershed hydrology resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Floodplains

Affected Environment

Portions of the grazing allotment are located in the 100-year floodplain. For administrative purposes, the 100-year floodplain serves as the basis for floodplain management on public lands. It is based on Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (1983) which describes a Zone A as the “Area of the 100-year flood”. Current development on the floodplain consists of two-track roads, water pipelines and boundary fence in the area.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Surface disturbance from the development of surface facilities and buried pipelines can result in impairment of the floodplain values from removal of vegetation, removal of wildlife habitat, impairment of water quality, decreased flood water retention and decreased groundwater recharge.

Under the Proposed Action rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the floodplain values. Low/moderate forage quality plants provide protection to the floodplain values. Cumulative long-term monitoring data reflect the floodplain values are being adequately protected.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the No Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative Impacts of All Alternatives

The incremental impact of issuing a grazing permit on floodplain resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on floodplain resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Continued rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion.

➤ Water Quality - Surface

Affected Environment

The Rio Hondo is a major tributary of the Pecos River, flowing through the allotments from west to east. It passes through Roswell before reaching the river approximately 21 miles to the east. The Rio Hondo is perennial in the relatively steep-gradient reach on the upper end of the allotments, but is ephemeral in the alluvial valley below the ranch headquarters. Water

withdrawals for irrigation of the fields in the lower reach reduce streamflows. Livestock access to the Rio Hondo is limited by fences and steep slopes.

The New Mexico Water Quality Control Commission has designated uses for ephemeral and perennial reaches of the Rio Hondo (WQCC 1995). Designated uses below the perennial reach (Segment 2206) include irrigation, livestock watering, wildlife habitat, secondary contact (e.g., wading), and warmwater fishery. These include uses in the mainstem of the Pecos River which can be affected by flow contributed from the Rio Hondo. Designated uses for the perennial reach of the Rio Hondo (Segment 2208) include fish culture, irrigation, livestock watering, wildlife habitat, coldwater fishery, and secondary contact.

Water quality assessments are performed by the State of New Mexico to determine whether designated uses are being supported. Water quality on the both reaches of the Rio Hondo is sufficient to fully support the designated uses (WQCC 1994).

Dirt tanks, irrigation canals and the Rio Hondo are the only surface water, none of which are located on the public land. The amount of water and period of retention in the dirt tanks is dependent on the weather conditions. Ground water is pumped from twenty five plus drilled wells across both allotments. The quality of the well water is adequate for livestock and wildlife use, and irrigation.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Direct impacts to surface water quality would be minor, short-term impacts during stormflow events. Indirect impacts to water-quality related resources, such as fisheries, may occur.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There will be no direct or indirect impacts to surface water quality if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on surface water resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being

addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on surface water resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

➤ Water Quality - Ground

Affected Environment

Fresh water sources are located in the Quaternary Shallow Alluvial Aquifer and the Unconfined San Andres Aquifer. The approximate depth to water in area ranges from 150 to 700 feet in the unconfined San Andres Aquifer (New Mexico Office of the State Engineer Data).

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

The proposed action would not have a significant effect on ground water. Livestock would be dispersed over the allotment, and the soil would filter potential contaminants.

Under the Proposed Action, rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect surface and groundwater. Low/moderate forage quality plants provide protection to the surface and groundwater. Cumulative long-term monitoring data reflect the surface and groundwater are being adequately protected.

Under the No-Grazing Alternative, any adverse impact from livestock grazing would be eliminated. However, it is possible that removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There will be no direct or indirect impacts to ground water quality if a no grazing action is selected.

Cumulative Impacts of all Alternatives

The incremental impact of issuing a grazing permit on groundwater resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in this area; oil and gas activities on the uplands; rights-of way crossing the area; and recreation use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state and private land.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activities began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future to some degree.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts on groundwater resources would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed.

Mitigation Measures and Residual Impacts

A rangeland health assessment has been completed and the allotment meets the Standards for Public Land Health. Rangeland monitoring would help ensure that adequate vegetation cover is maintained to protect the soil from erosion which would decrease dust levels resulting from allotment management activities.

3.2 Archaeology

➤ Cultural and Historical Resource

Affected Environment

The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural/temporal periods: Paleoindian (ca. 12,000-8,000 B.C.), Archaic (ca. 8000 B.C. –A.D. 950), Ceramic (ca. A.D. 600-1540) Protohistoric and Spanish Colonial (ca. A.D. 1400-1821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites representing any or all of these periods are known to occur within the region. A more complete discussion can be found in *Living on the Land: 11,000 Years of Human Adaptation in*

Southeastern New Mexico An Overview of Cultural Resources in the Roswell District, Bureau of Land Management published in 1989 by the U.S. Department of the Interior, Bureau of Land Management.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Concerning cultural resources, grazing has the potential for impacts. The Roswell Field Office reviews the local office and NMCRIS databases for every grazing permit or leasing action at all levels of NEPA. Ten plus surveys and ten plus sites have been reported in allotment 64060 and six surveys and two sites in allotment 64560. Currently, there is no evidence that grazing activities at this intensity have adversely impacted any cultural resources; however, unforeseen impacts may occur.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There will be no direct or indirect impacts to cultural resources if a no grazing action is selected.

Cumulative Impacts of All Alternatives

Cultural resources are not usually adversely affected by livestock grazing, although concentrated livestock activity, such as, around livestock water troughs can have adverse effects on the cultural resource.

Mitigation Measures and Residual Impacts

At this intensity, there are no mitigation measures; however, in situations where sensitive sites are present, site specific visits may be conducted to assess the presence of effects.

➤ Native American Religious Concerns

Affected Environment

Native American groups may have places that can be described as Traditional Cultural Properties or other places that are important to their religions or cultures. The BLM uses the New Mexico Department of Cultural Affairs list of tribes/nations/pueblos concerned for individual counties to determine which of these groups may have concerns. To date, the areas to be affected have not been identified by interested tribes as being of tribal concern.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

The BLM conducts tribal consultation for many projects while preparing planning documents such as the Resource Management Plan and Resource Management Plan Addendums. A review of existing information available to BLM indicates the proposed action is outside any known Traditional Cultural Property.

Impacts from the No Grazing Action

Direct and Indirect Impacts

There will be no direct or indirect impacts to locations of native american religious concern if a no grazing action is selected.

Cumulative Impacts of All Alternatives

Cumulative impacts are unknown.

Mitigation Measures and Residual Impacts

There are no mitigation measures at this time.

3.3 Range

➤ Vegetation

Affected Environment

The vegetation on the public land within Allotment #64060 fits five major ecological sites: the Shallow SD-3, Limestone Hills CP-3, the Shallow CP-4, Very Shallow CP-4, and Limestone Hills CP-4. In the Shallow SD-3 and in the Shallow CP-4 Ecological sites black grama is the most abundant grass, while sideoats grama, hairy grama, blue grama, Halls panicum, vine mesquite, wolftail, burrograss, sand dropseed, tridens, sand and ear muhly, tobosa and three-awn are also found. Shrubs such as catclaw acacia, yucca, broom snakeweed, littleleaf sumac, bear-grass and mesquite are also found on these range sites. Forbs which may occur in these areas are buckwheat, croton, wooly groundsel, bladderpod, and globemallow. The differences between the two sites include the soils and percentages in which the vegetation occurs at potential.

In the Very Shallow CP-4 Ecological site, black grama is again the most abundant grass with good representations of sideoats grama, tridens, dropseed, blue grama, burro grass and three-awn. Other grasses such as tobosa, sand and ear muhly, vine mesquite, hairy grama and wolftail were also noted on these sites. The shrub component is made up of yucca, cactus, with some mesquite and an occasional broom snakeweed, mormon tea and catclaw. Many of the same forbs found in the Shallow SD-3 and CP-4 site were apparent in the Very Shallow CP-4 site. The Limestone Hills SD-3 and CP-4 Range sites, found on generally on the most shallow soils with the greatest amount of slope, have a high amount of black grama, blue grama and sideoats. Other grasses noted in these sites are hairy grama, three awn, muhlys, dropseeds, and wolftail. The forb component in all of the sites varies from year to year, dependent upon the amount and timing of precipitation. Again the differences between the two sites include elevation, soils and percentages at which the vegetation occurs at potential.

From 1978 to 1999 agencies were using the traditional range condition methodology to depict range condition. This compared collected rangeland monitoring information with the potential vegetation community in terms of species composition by weight. The rating is based on a scale of 0 to 100 with 100 being the actual representative site.

The percent bare ground and rock found on the allotment falls within the parameters established by the RMP/EIS for these vegetative communities. Copies of the monitoring data and the analysis of the data are available at the Roswell Field Office.

Monitoring data has been collected in 1983, 1987, 1992, 1997, 2004 and 2014/15. Analysis of the monitoring data indicates that range trend is static and that with a 45% use factor, there is sufficient forage (on a sustainable basis) for the number of animal units permitted.

The long term vegetation production, ground cover and trend data for these allotments is shown at the end of this document. Rangeland health assessments were also completed on these allotments in 2015; this documentation may be reviewed at the Roswell Field Office.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Under Alternative A (No Action, Proposed Action) the vegetation in the vegetative community will continue to be grazed and trampled by domestic livestock as well as other herbivores. The area has been grazed by livestock since the early part of the 1900's, if not longer. Ecological condition and trend is expected to remain stable and/or improve over the long term at the permitted number of livestock.

Upland sites would reflect a static ecological condition trend at the existing permit level. Some grassland areas would remain static due to the influence of juniper, mesquite and cholla. In the long term, juniper or mesquite treatments may be necessary to ebb the encroachment onto historical grassland sites.

Range monitoring data indicate that the vegetation is sustainable to meet multiple resource requirements and forage at the permitted use level under the Alternative A Proposed

Action. Data indicate that livestock grazing is compatible with vegetation cover and composition objectives. In addition to the static trend in ecological condition, monitoring data show the vegetative resources have been maintained and sustained since monitoring began in 1981.

There are twenty four vegetative studies on these allotments, established in 1982. Ecological conditions as shown by the data collected from 1982 through 2004 indicate the vegetation is sustainable at the proposed amount of grazing by livestock. Vegetation studies indicate that the diversity and amount of vegetation present meets the multiple resource requirements and will support the number of livestock proposed for these allotments. Copies of the monitoring data and the analysis of the data are available at the Roswell Field Office.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the No-Grazing Alternative, no impacts to vegetation resources would occur on public lands from authorized livestock grazing. Vegetation cover would increase over the long term in some areas. Grasslands in the uplands would increase in cover and composition, but composition would be tempered by juniper or mesquite somewhat dominating the shrub component. Spike dropseed would, in the short term, increase in cover and composition but would then taper off in the long term, becoming decadent from the lack of standing vegetation removal by grazing.

Cumulative Impacts of All Alternatives

Excluding livestock or reducing stocking rates could benefit vegetation in the short term, in those areas proposed for livestock grazing restrictions. Eliminating livestock grazing pressure would allow plants to regain vigor and would increase forage production in the short term. An overall increase in the density of vegetation could occur, followed by a subsequent increase in vegetative litter. In the long term, vegetative production would decline slightly as litter builds up and plants become decadent. Increased litter would indirectly benefit vegetation by slowing precipitation runoff and holding moisture on the ground for longer periods. Properly managed grazing would be beneficial because it stimulated plant growth in healthy vegetative communities.

Mitigation Measures and Residual Impacts

Vegetation monitoring studies will continue if a new grazing permit/lease was issued under the Proposed Action. Changes to livestock management would be made if monitoring data showed adverse impacts to the vegetation.

➤ **Livestock Grazing**

Affected Environment

The allotments are grazed by cattle and sheep, using a cow-calf and a sheep operation. Horses and goats may also be authorized. The horses are generally used for working stock. The latest grazing permit on Allotment 64060 (Hondo Canyon Ranch) was 1587 cows, 1 horse, 5 goats and 5 sheep, the lease on Allotment 64560 (Hondo Canyon West) was for 112 cows, 1 horse, 5 sheep and 5 goats. The livestock are rotated in the pastures, using a best pasture rotation system. As the public land lies on the uplands, rest periods generally occur during the summer when the stock is moved to an area of all private land.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Under Alternative A, Proposed (No Action) Alternative, livestock would continue to graze public lands within the allotment. Existing pasture configurations and water developments would remain the same.

The proposed action would allow the existing livestock management to continue. The existing management is not causing any adverse impacts to the environment. The distribution and supply of livestock water is available for wildlife. Livestock under rotation grazing will continue to maintain or increase ground cover by stimulating growth of vegetation and by scattering litter which protects the soil from wind and water erosion.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the no grazing alternative there would be no grazing on the federal land in the area of Allotment 64060 or Allotment 64560. This would have an adverse economic impact to the livestock operation. Even though there are significant amounts of private and state leased lands within the allotments, due to the dispersal of the tracts, grazing management would be difficult and uneconomical for the permittee to have sustainable agricultural production. Requirements by the Taylor Grazing Act and under current regulations as stated in 43 CFR 4199.0-2 Objectives: to accelerate restoration and improvement of public rangelands to properly functioning conditions; to promote the orderly use, improvement and development of the public lands; to establish efficient and effective administration of grazing of public rangelands and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands would not be met.

Under No-Grazing Alternative, the overall livestock operation on Allotment 64060 would be reduced by 842 AUs. (those attached to the public lands within Hondo Canyon); the overall livestock operation could be reduced by 115 AUs (those attached to the public lands on Hondo Canyon West) on Allotment 64560. This would have an adverse economic impact on the

permittee/ lessee and Lincoln and Chaves County would lose the tax revenue for the stock associated with the public lands.

Cumulative Impacts of All Alternatives

The incremental impact of issuing a grazing permit/lease on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in the area, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands.

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Oil and gas activity began in the early part of the 20th century. These activities are still occurring today, and are expected to continue into the foreseeable future.

The analysis of cumulative impacts is driven by major resource issues. The proposed action is the authorization of livestock grazing on this allotment. The cumulative impacts to the allotment and adjacent allotments are insignificant.

Mitigation Measures and Residual Impacts

If new information surfaces that livestock grazing is negatively impacting other resources, action will be taken at that time to migrate those impacts.

Cumulative impacts of the grazing and no grazing alternatives were analyzed in Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994) and in the Roswell Resource Area Draft RMP/EIS (BLM 1994). The "no livestock grazing alternative" was not selected in either document. If the No Grazing Alternative were chosen, some adverse cumulative impacts would be eliminated, but other would occur. Grazing would be no longer available as a vegetative management tool, and BLM lands within the allotment would be less intensively managed.

Residual impacts are direct, indirect or cumulative impacts that would remain after applying the mitigation measures. Residual impacts following authorizing livestock grazing would be insignificant if the mitigation measures are properly applied.

➤ Invasive, Non-Native Species

Affected Environment

Noxious weeds affect both crops and native plant species in the same way, by out-competing for light, water and soil nutrients. Losses are attributed to decreased quality and quantity of agricultural products due to high levels of competition from noxious weeds and infestations. Noxious weeds can negatively affect livestock productivity by making forage unpalatable to livestock thus decreasing livestock productivity and potentially increasing

producer's feed costs. Potential noxious weed species include musk thistle and Russian knapweed. There are no known populations of noxious weeds on this allotment.

3.4 Wildlife Biology

Describing the extent of wildlife and wildlife habitat encompassed by the two adjoining allotments (64560 & 64060) begins with the size of the combined allotments. Approximately 89,565 GIS- acres of land is encompassed by the two allotments making it the third largest land area for an aggregate grazing allotment in the Field Office. The ranches extend about 20 miles east-west and about 12 miles north-south.

Along with the size of the area, is the geographic location of the allotments on the landscape. It straddles the general landform break between uplands and lowlands. The aggregate ranch is large enough include sizeable acreage of the broad foothills of the Sierra Blanca and Capitan Mountains to the west and northwest and the more gently sloping open grassland aspect east toward Roswell, NM. The area includes a major landform feature known as Border Hills (elev. 4700 feet), a unique geologic feature observed as a right lateral fault line visible from satellite imagery. This feature is found on 64560.

Numerous draws and canyons thread through the landscape of both allotments and generally trend east toward the Pecos River Valley. The largest of these drainages is known as the Rio Hondo which is mostly a perennial stream, becoming underground toward the east end of the 64060. The river is sinuous through both allotments until it reaches irrigated pasturelands within 64060. The breaks between the uplands and the Hondo Valley is very broken hilly terrain dissected by numerous smaller drainages leading to the Rio Hondo. Other large drainages include Rocky Arroyo, Buchanan Draw, Coyote Canyon and Bonney Canyon.

The highly diverse assemblage of habitat types and habitat features throughout the combined allotments is not only influenced by geographic locations and geologic formation (mostly limestone) but includes the influence of the Chihuahuan Desert biome to the south and the shortgrass prairie to the east and north. Elevational changes and its influence on vegetation can be observed as well, from open grassland habitat east near Roswell at 3900 feet, to mixed desert shrub grassland aspect around 4300 feet, to a rolling hills juniper grassland type to the west at 5100 feet with some slopes at or greater than ten percent, a 1220-foot change in elevation east-west.

Generally, the two allotments are relatively undisturbed from other resource uses such as extensive oil and gas fields, quarries and other large scale developments. Because of the rugged terrain, there are not many large scale rights-of-way through the allotments, with the exception of State Hiway 70/380. Historical use of the allotments have been agriculturally-based such as livestock grazing and farming. Most of the anthropogenic developments are ranching-based but include transporation needs such as Highway 70/380 and various county and ranch roads.

Allotment 64060, the largest of the two allotments, has twenty pastures and three traps, fifteen base water wells plus six additional supplemental water wells, a water pipeline system, several dirt tanks, irrigation canals and the Rio Hondo. The allotment surrounds but does not

include a tract of 2,229 acres of privately-held irrigated fields. These fields, although private, influence wildlife populations in the area.

Allotment 64560 lies west and northwest of allotment 64060. There are ten pastures and two traps, seven wells, and a water pipeline system. The Rio Hondo bisects the ranch, but no public land borders the river. As with irrigated pastures within allotment 64060, the Hondo River influences wildlife populations in the area.

Because of the variety of habitats encompassed by the two adjoining allotments, an emphasis on areas of better-blocked public lands is made to focus descriptions and analysis of wildlife and habitat on public lands administered by BLM.

➤ **Wildlife**

Affected Environment

The varied topography, vegetation community types, natural and manmade habitat features, and location of the allotments on the landscape provide a diverse assemblage of terrestrial, aquatic and avifaunal wildlife species. Wildlife species diversity is high because of the elements above coupled with the size of the two allotments combined into this EA for analysis.

Key economic wildlife species include mule deer, Barbary sheep, pronghorn antelope, mourning dove and scaled quail, wild turkey, and various furbearers. The present distribution of pronghorn antelope varies within the allotments due to landform and limitations to pronghorn movement across their historical range where habitat is available. Movement patterns and distribution is affected by net-wire fences associated with sheep ranching.

Common small mammal species using the area include coyote, gray fox, bobcat, striped skunk, porcupine, raccoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, and woodrat.

Numerous migratory birds species utilize the areas including geese and ducks utilizing open irrigated pastures and various open water developments. Numerous avian species use the area during spring and fall migration, including non-game migratory birds. Raptors that utilize the area on a more seasonal basis include the Swainson's, red-tailed, and ferruginous hawk, American kestrel and great-horned owl.

A large number of herptile species occur throughout the landscape with species richness influenced by available habitat niches. The more common reptiles include the short-horned lizard, lesser earless lizard, eastern fence lizard, coachwhip, bullsnake, prairie rattlesnake, and western rattlesnake.

Because of the high diversity of habitats across the landscape encompassed by the two allotments, a general description of key habitats and species is presented by pasture, with most emphasis on those pastures with better-blocked parcels of public land.

The following table provides a brief description of main wildlife and habitat concerns on the allotments.

Allotment Number	Pasture Name	Description
64560	Nunez Trap Border Hill Trap Ridgill Trap East Border Canyon	These five private pastures are located south of Highway 70. The highway serves as the north boundary to Nunez and Border Hill Trap and East Border Canyon pastures. No public lands are located within the pastures.
	West Border Canyon Nunez West Ridgill	Also located south of Highway 70. The highway serves as the north boundary to West Border Canyon. Less than 100 acres of public land combined between the three pastures. Limited ability to manage the small parcels of public land within the larger private pastures.
	North Riley Coyote Canyon Trap Riley Trap Middle Riley South Riley	These pastures are located north of Highway 70. Open and very hilly grassland habitat with numerous drainages. Management of wildlife habitat somewhat limited because of the checkerboard arrangement of public and private land parcels.
	Hill Childress	Located north of Highway 70. Open and hilly grasslands with several draws. Relatively large blocks public land between the two pastures. Access afforded by Border Hill County Road in Childress Pasture.
64060	West Border East Border	Both pastures are north of Highway 70 which serves as the south boundary of the pastures. Well-blocked public lands mostly along the highway. East Border pasture is more checkerboard in ownership pattern. Open grassland with grassy swales. Pockets of catclaw acacia and creosotebush.

	Hondo Nunez East Siphon East Bar H	From north to south, these pastures are adjacent to Allotment 64560 and are the western extent of the Allotment 64060. Hondo and East Bar H contain the largest blocks of public land. Open and hilly grasslands with numerous drainages. Hondo Pasture is a highly sought out area for hunting mule deer due to ideal habitat for deer, and public accessibility to and through well-blocked public land within the pasture.
	Diamond A Trap Schoolhouse Vat 3Z North Horse	Well-blocked public lands bordered by private land inholdings limiting legal access to public lands. Large, rolling hills grasslands with many drainages that may have a strong brush component including summac, four-wing saltbush, mesquite, catclaw acacia in loamy bottoms. Uplands are grassy and may have a mosaic of brush species including a strong cacti component. Thin soils over limestone base, rocky habitat but diverse in vegetation. High potential for maintaining and improving wildlife habitat on public lands.
	West Baldy North Buchanan South Buchanan North Cole South Cole Horse Trap	Continuous well-blocked public lands that make up the majority of the pasture with little private land inholdings. Very similar to the above description with the main difference being ownership. Habitat and wildlife diversity is high due to the mixture of hilly grasslands and vegetated draws providing excellent food and cover for wildlife. Much public use of the area for big game, and small game hunting, and camping. High potential for maintaining and improving wildlife habitat on public lands.
	Rocky Trap Baldy East Trap River Longhouse Center	Very little public land in isolated scattered tracts. Access to public lands not open due to private land inholdings surrounding public land parcels
	East Burns	Mostly well-blocked public land. Habitat had graded down from large, rolling hills to low, more open grasslands with more grassy swales. Topography is flattening toward the Pecos Valley and closer to Roswell. High potential for maintaining and improving wildlife habitat on public lands.

Several pastures have received vegetation treatments to control high composition of invasive species such as mesquite and catclaw acacia due in part to improve rangeland

conditions associated with livestock grazing. Wildlife population shifts in response to removal of brush species have occurred in treatment areas. Brushy draws were excluded from treatments along with other areas identified by wildlife as buffers. Following treatments, a 2-growing season rest was implemented to allow for vegetation growth.

Range improvements abound on both allotments. Water developments are found throughout the area in the form of pipelines, storage facilities, windmills, powered wells, earthen tanks and troughs with benefits to numerous wildlife species in this semi-arid region.

Fences are a necessary part of managing livestock operations. Most fences were constructed when sheep grazing was prominent in the area. Currently, cattle is the predominant class of livestock with a few head of sheep still attached to the permit. Netwire fence modifications to allow for wildlife movement, particularly pronghorn and antelope and mule deer, remain a priority as a wildlife habitat enhancement technique for the allotments.

There are no permanent wetlands located on public lands within the allotments (see section on Wetland/ Riparian Zones below). Xeroriparian communities can be found in many draws and drainages. Main tree species that thrive in these areas include hackberry and black walnut, and in some large draws, cottonwood trees. The draws may also support vigorous growth of upland brush species that respond to greater supply of soil moisture such as little leaf sumac, apache plume, 4-wing saltbush, and mesquite. These areas provide a disproportionate diversity of wildlife species compared to the uplands. Typically, these areas are not segregated by fences and are a part of the larger pasture.

Most anthropogenic developments are associated primarily with ranching operations, fragmentation of habitat from developments is relatively low. Linear developments across the landscape include roads, pipelines, powerline rights-of-way, and fences. Point developments include livestock watering facilities, well developments, earthen tanks, old outbuildings, corrals and pens.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Under the Proposed Action (No Action), livestock grazing management and range improvement projects designed with consideration for wildlife would generally enhance the quality of wildlife habitat. Vegetation condition, forage production, and habitat diversity would improve, and wildlife species distribution and abundance would increase.

The construction of livestock waters in previously unwatered areas would promote increased wildlife distribution and abundance, but may potentially increase grazing pressure in those same areas. Short-term impacts of range improvement projects would be the temporary displacement of wildlife species during construction activities. Maintenance and operation of existing waterings will continue to provide dependable water sources for wildlife, as well as livestock.

The permitted use as described in the Proposed Action (No Action) is not anticipated to have any adverse impacts to wildlife forage and availability. In general, livestock stocking rate

adjustments have been made in the past to minimize the direct competition for those vegetative resources needed by a variety of wildlife species. Cover habitat for wildlife will remain the same as the existing situation. It is expected that no new impacts to wildlife habitat would occur from authorized livestock grazing with cattle.

A long term benefit to wildlife movement may occur as netwire fencing no longer needed and would eventually be replaced, in part or all, with 4-strand barbed wire/smooth wire fences and passes. Grazing permits which continue to authorize sheep animal units would continue to impact wildlife movement patterns, specifically for pronghorn antelope, due to the continued use of restrictive netwire fencing.

Indirect impacts relate to changes in vegetation condition over time, the loss of wildlife species to range improvements constructed for livestock grazing operations and management, and harassment from human visitation in the area associated with livestock operations and maintenance of facilities. A shift from a balanced composition of grasses, shrubs and forbs for each of the habitat types from past grazing impacts has already occurred through the decades of grazing use on the landscape. Continued rangeland monitoring would be used to adjust livestock use to ensure the maintenance and improvement of existing habitat conditions and movement toward an upward trend in in vegetation condition for each habitat type found on the allotment.

Cumulative Impacts

The majority of land in this area is currently grazed by livestock, continuing a tradition and way of life that has been going on for at least 100 years. Authorizing livestock grazing on this allotment contributes to the overall cumulative impact of livestock grazing in the region but is diluted by the fact that this practice is historic use with vegetation changes having already shifted by livestock grazing and vegetation manipulation. With proper grazing management which considers wildlife needs, and maintenance of plant communities that support the variety of wildlife in the area, it is expected to be a positive cumulative impacts contribution of improving the condition of habitat through proper management.

As livestock grazing is the predominant land use over the landscape, most cumulative effects are added to this existing use. New developments such as oil and gas exploration and development, various energy-related rights-of-way, recreational use and other resource uses on the landscape likely contribute more to cumulative impacts than the long-standing livestock grazing impact.

Mitigation Measures and Residual Impacts

The general mitigation for permitting of livestock grazing on public lands include an allocation of vegetation resources for wildlife habitat maintenance and a diversity of wildlife species. The following general mitigation measures are typically applied to associated livestock operational developments.

- Implementation of a rest-rotation system
- Non-Use during periods of drought

Installation of wildlife escape ramps in watering facilities
Yearlong supply of water at watering facilities
Modification of existing fences to enhance wildlife movement, especially netwire fences
Vegetation treatments to meet Desired Plant Community goals and objectives
Growing season rest after vegetation treatments

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the No Grazing Alternative, there would no longer be direct competition between livestock and wildlife for forage, browse and cover. Wildlife habitat would moderately improve. The limitation for improvement would continue to be the existing invading species component (e.g., mesquite, snakeweed) affecting plant composition. Since livestock grazing would not be permitted, range improvement projects that benefit wildlife, such as water developments, would be abandoned. New range improvement projects that would also benefit wildlife habitat, such as brush control, may not be implemented because these projects are primarily driven and funded through range improvement efforts.

Cumulative Impacts

Under the No Grazing alternative for the two allotments considered under this EA, beneficial cumulative impacts to the plant communities over the landscape may occur in the long-term with no grazing because of the amount of public land acreage involved. Wildlife species diversity may increase but would be tempered by the loss of water developments and some grazing disturbances needed to keep vegetation invigorated. This is an unlikely scenario with no further discussions.

➤ Wetlands/Riparian Zones

Affected Environment

Within these allotments floodplains exist that are recorded on Federal Emergency Management Agency maps. The identified floodplains are generally the major drainages along the Rio Hondo and Rocky Arroyo. Water pipelines, fences and roads cross the floodplains; no adverse impacts have resulted from these improvements. No future permanent, above ground structures will be authorized on federal lands within the floodplains.

Areas along the perennial reaches of the Rio Hondo are considered to be riparian or wetland areas. As these areas exist on private land no permanent study locations have been placed. It has been noted that the riparian types of vegetation such as cottonwoods, sedges, and willows are present and appear to be abundant and vigorous. Again, as these areas exist on private land no further discussion will be included on this subject.

3.5 Recreation

➤ Recreation

Affected Environment

Recreation: Dispersed recreational opportunities exist in Allotment 64060 as access to the public land is available along US Highway 70/380. Dispersed recreational activities include hunting, caving, sightseeing, bird watching, primitive camping, and hiking. Off Highway Vehicle designation for public lands within this allotment is classified as "Limited" to existing roads and trails. The majority of public lands in this allotment can be accessed by foot (hiking, or walking) or by vehicles via US Highway 70/380 and by Mossman or Baton Rouge County roads.

Recreation opportunities are limited in Allotment 64560 because the public has limited legal/physical access to public lands on the south side of US Highway 70/380. The two parcels of public land within this portion of the allotment exist along the edge of the allotment, one along a curve in US Highway 70/380 and the other is surrounded by private lands. The majority of the public lands on the north side of the highway are available for dispersed recreational activities and are usually accessible by foot (hiking or walking) or by vehicle via Border Hill County Road and to a lesser extent, Riley County Road.

Off Highway Vehicle designation for the public land within these allotments is classified as "Limited" to existing roads and trails.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Grazing should have little or no impact on the dispersed recreational opportunities within Allotments 64060 and 64560. The evidence or presence of livestock can negatively affect visitors who desire solitude, unspoiled landscape views or hike without seeing signs of livestock. However, grazing can benefit some forms of recreation, such as hunting, by creating new water sources for game animals.

Continued grazing of the allotments may affect significant caves or karst resources if protective measures are not followed. If monitoring determines that significant caves or karst features are being affected by grazing, additional protective measures will be required. The protective measures could include, but are not limited to, the following actions: Fencing sinks, cave entrances or arroyos from multiple-use impacts; removing check-dams, erosion control projects and stock ponds; closing roads; no chemical vegetation removal. The area around significant caves or karst features should be treated sensitively, so no adverse impacts affect the cave or karst feature.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Those recreationists who desire solitude and no livestock would be benefited from this alternative. Hunters may not benefit from this alternative if livestock waters are not maintained, which would affect hunting opportunities. This alternative would have no effect on caves or karst features.

3.6 Cave and Karst

Affected Environment

Caves and Karst: Allotment 64060 is located within a designated area of Medium Karst and Cave Potential.

Although a complete significant cave or karst inventory has not been completed for the public lands located in this grazing allotment, a significant cave or karst feature is known to exist within this allotment. Monitoring of the Cave/Karst feature will be necessary to determine if protective measures are required in the future.

This proposed project is located in gypsum karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Gypsum karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

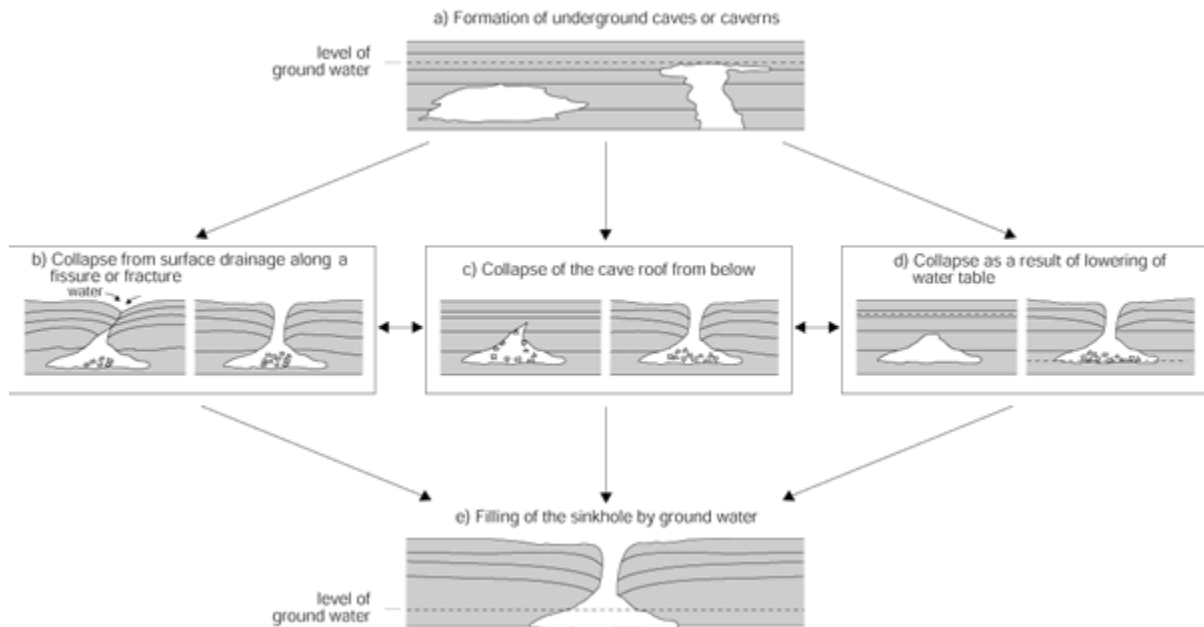
The BLM categorizes all areas within the Roswell Field Office as having either low, medium, high cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to fresh water aquifers. This project occurs within a Medium to High karst zone and known cave(s) or karst feature(s) are within the allotments. A High karst zone is defined as an area in known soluble rock types and contains a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat.

Unknown features may also exist. Due to these factors, this action is subject to mitigation measures designed to adequately protect known and potential cave/karst resources.

Sinkholes and cave entrances collect water and can accumulate rich organic materials and soils. This, in conjunction with the stable microclimate near cave entrances, support a greater diversity and density of plant life which provides habitat for a greater diversity and density of wildlife such as raptors, rodents, mammals, and reptiles.

The interior of the caves support a large variety of troglobitic, or cave environment-dependent species. The troglobitic species have adapted specifically to the cave environment due to constant temperatures, constant high humidity, and total darkness. Some of the caves

in the area contain bat colonies. Many of the caves in this area contain fragile cave formations known as speleothems.



Sinkhole Development

(http://geoinfo.nmt.edu/tour/state/bottomless_lakes/home.html)

White Nose Syndrome and Identified Hibernacula

Many Roswell Field Office caves are identified or potential hibernation sites and are optimum sites for White Nose Syndrome (WNS) establishment. Any karst area north of Roswell is subject to this situation. While WNS is still 500 miles from the area, it is still of great concern to the bat population in this area. White Nose Syndrome was first documented on hibernating bats at Howe caverns in 2006 in New York and by 2014 it had moved over 1300 miles across twenty eastern and southern states, and five Canadian provinces, and has killed well over 5 million bats. Infection is definitely bat-to-bat and humans are suspected of transporting the spores

<http://whitenosesyndrome.org/> &
<http://static.whitenosesyndrome.org/sites/default/files/resource/wnshumantransmissionposter.pdf>

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

Cave and karst features provide direct conduits leading to groundwater. These conduits can quickly transport surface and subsurface contaminants directly into underground water systems and freshwater aquifers without filtration or biodegradation. In addition, contaminants spilled or leaked into or onto cave/karst zone surfaces and subsurfaces may lead directly to the disruption, displacement, or extermination of cave species and critical biological processes.

In cave and karst terrains, rainfall and surface runoff is directly channeled into natural underground water systems and aquifers. Changes in geologic formation integrity, runoff quantity/quality, drainage course, rainfall percolation factors, vegetation, surface contour, and other surface factors can negatively impact cave ecosystems and aquifer recharge processes. Blasting, heavy vibrations, and focusing of surface drainages can lead to slow subsidence, sudden collapse of subsurface voids, and/or cave ecosystem damage.

BLM maintains up to date locations and surveys of known cave and karst features. Projects will be located away from these features whenever possible. Fences and pipelines will be routed around cave and karst features at an adequate distance to mitigate adverse impacts

Highly sensitive cave and karst areas with critical freshwater aquifer recharge concerns may have a number of special surface and subsurface planning and construction requirements based upon the risk of adverse impacts created by a specific location or process.

Impacts from the No Grazing Action

Direct and Indirect Impacts

Under the No Grazing Alternative, no impacts to cave and karst resources would occur on public lands.

Cumulative Impacts of All Alternatives

The incremental impact of authorizing surface disturbing impacts on cave and karst resources must be analyzed in the context of impacts from cumulative actions. Other BLM actions that could have impacts on the identified resources include: livestock authorization on other allotments in the area, oil and gas activities on the uplands, rights-of-way crossing the area and recreational use, particularly off-highway vehicles. All authorized activities which occur on BLM land can also take place on state or private lands.

The analysis of cumulative impacts is driven by major resource issues. The proposed action is the renewal of a grazing permit on these allotments. The cumulative impacts to cave and karst resources from the renewal of a grazing permit on these allotments are minimal.

Mitigation Measures and Residual Impacts

Livestock grazing could be affected by the presence of karst features if livestock became entrapped in deep sinkholes, which has occurred with sheep grazing on karst land north of Roswell. This could be prevented by creating exclosures around identified karst features that pose a hazard to livestock. In the event that range improvement projects are proposed, the presence of karst features would be further analyzed in related environmental assessments.

If new information surfaces that livestock grazing is negatively impacting cave and karst resources, action will be taken at that time to migrate those impacts.

3.7 Geology

➤ Paleontology

Affected Environment

The BLM manages paleontological resources for their scientific, educational, and recreational values in compliance with the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA affirms the authority for many policies the BLM has for managing resources, such as issuing permits for collecting and curating paleontological resources, and confidentiality of their locations. The law also defines prohibited acts, such as damaging or defacing paleontological resources, and establishes both criminal and civil penalties.

The BLM classifies geologic formations to indicate the likelihood of significant fossil occurrence (usually vertebrate fossils of scientific interest) according to the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands (IM 2008-011). These classifications, Classes 1 to 5, determine the procedures to be followed prior to granting a paleontological clearance to proceed with a project.

All paleontological resource stipulations will be followed as indicated in the attached COAs. These may include, but are not limited to, altering the location or scope of the project, permanent fencing or other physical, temporary barriers, monitoring of earth disturbing construction, project area reduction or specific construction avoidance zones, and fossil recovery. If the assessment of the proposed action indicates a reasonable expectation of adverse impacts to significant paleontological resources, a field survey will be necessary to properly document and recover any fossil material and associated data. Upon review, a determination for final project clearance and stipulations shall be issued by the BLM/RFO.

Most of the project area is designated as a Class 3 area (San Andres limestone and dolomite. Invertebrates fossils are possible over much of the area). Ground disturbing activities are not likely to disturb paleontological resources in these areas.

Impacts from the No Action (Proposed) Alternative

Direct and Indirect Impacts

The Proposed Action would not affect any known scientifically significant paleontological resources. However, surface disturbing activities and increased human access could produce unexpected discoveries and potential paleontological resource damage. Direct impacts could include damage or destruction during construction activities or other surface disturbing activities, with subsequent loss of information. Indirect impacts would include fossil damage or destruction by erosion due to surface disturbance.

Cumulative Impacts

While it is likely that there will be no significant cumulative impact from the proposed action, surface-disturbing activities in this area may potentially have negative cumulative impacts on paleontological resources. The greatest potential impact to surface and subsurface fossils would result from disturbance of surface sediments and shallow bedrock during construction activities such as road building and maintenance. As only portions of the project area have been evaluated for the occurrence of paleontological resources, and discrete locations for potential activities cannot be determined at this time, no accurate estimate can be made as to the number of paleontological sites that may be affected by development activities.

Impacts from the No Grazing Action

Direct and Indirect Impacts

By not approving the Grazing Permit under the No Grazing Alternative there would be no impact to paleontological resources in the area.

Cumulative Impacts

The No Grazing Alternative would have no cumulative impacts to paleontological resources.

Mitigation Measures and Residual Impacts

If previously undocumented paleontological sites are encountered during development of the project, the project proponent will immediately stop all construction and surface disturbing activities in the immediate vicinity of the discovery. The proponent will then immediately notify the paleontological monitor (if required), or the BLM/RFO paleontology resource staff. It is necessary to protect fossil material and their geological context upon discovery during construction. The BLM would then evaluate the site. Should the discovery be evaluated as significant, it will be protected in place until mitigation measures can be developed and implemented according to guidelines set by the BLM. Mitigation measures such as data and

fossil recovery may be required by the BLM to prevent impacts to newly identified paleontological resources.

4.0 Supporting Information

4.1. Tribes, Individuals, Organizations, or Agencies Consulted

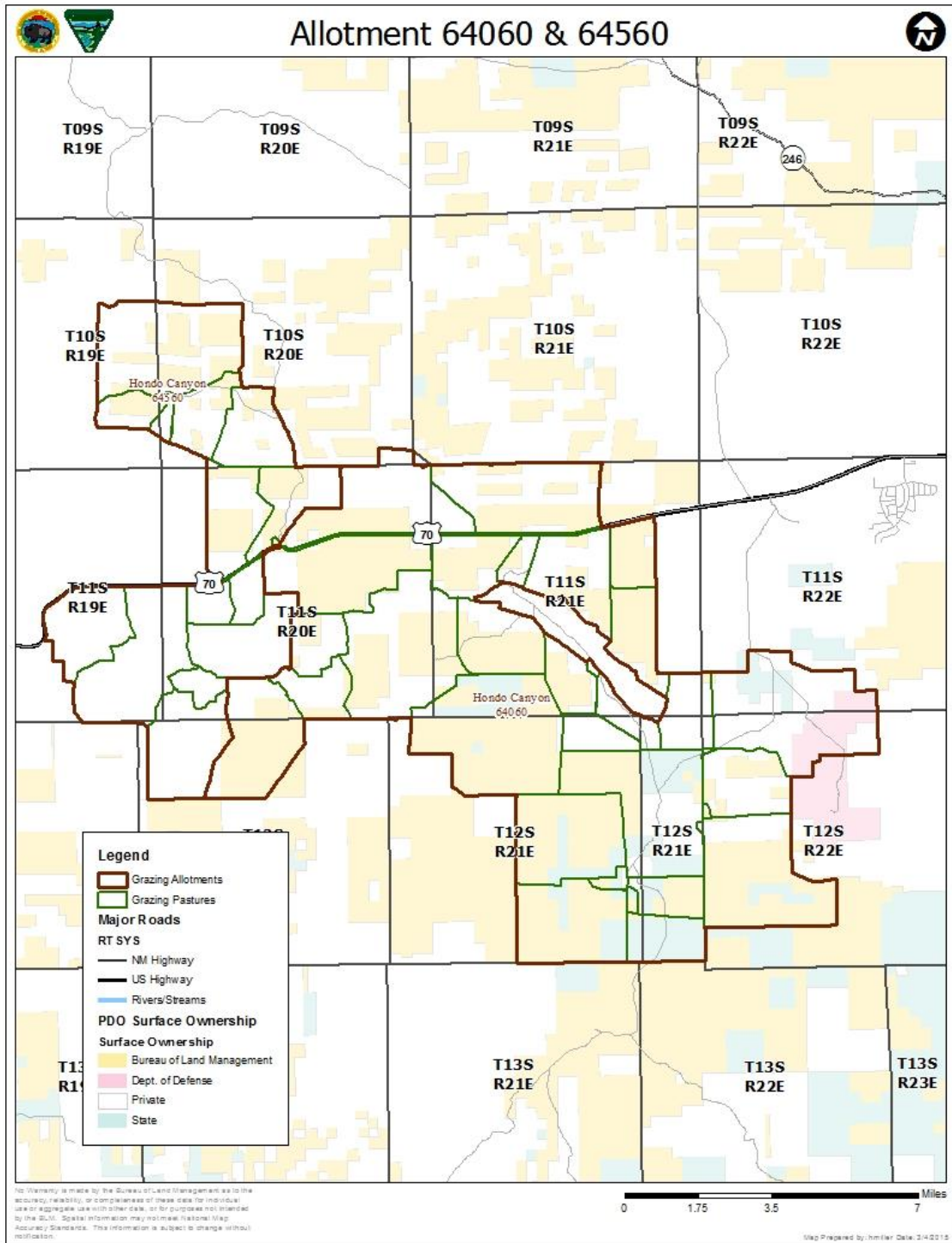
No tribes were contacted at this time for this level of authorization.

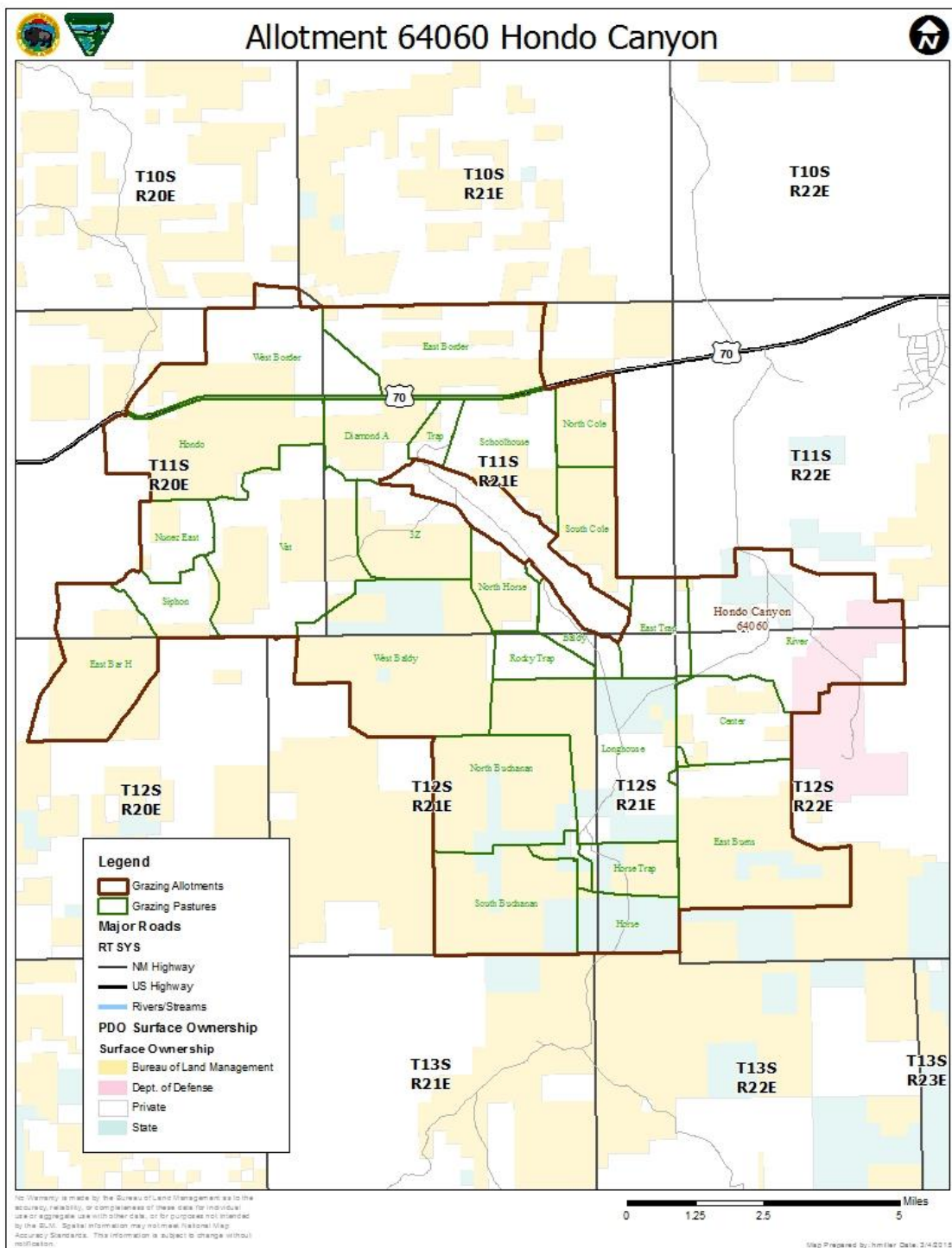
4.2. List of Preparers

Glen Garnand, Environmental & Planning Coordinator
Harley Davis, Natural Resource Specialist
Al Collar, Geologist
Adam Ortega, Rangeland Management Specialist
Emily Metcalf, Rangeland Management Specialist
Helen Miller, Rangeland Management Specialist
Laura Hronec, Archaeologist
Michael McGee, Hydrologist
Michael Bilbo, Outdoor Recreation Planner & Cave Specialist
Knutt Peterson, Outdoor Recreation Planner & Cave Specialist
Randy Howard, Wildlife Biologist
Dan Baggao, Wildlife Biologist
Phil Watts, GIS Specialist
Tate Salas, Realty Specialist
Ruben Sanchez, Realty Specialist
Howard Parman, Program Manager, Pecos District

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Allotment 64560 Hondo Canyon West

